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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,237	08/28/2006	Janne Maaranen	002429USU/3053	2225
27623 7590 03/17/2008 OHLANDT, GREELEY, RUGGIERO & PERLE, LLP ONE LANDMARK SQUARE, 10TH FLOOR STAMFORD, CT 06901				
EXAMINER				
LET, RIP A				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/550,237

Applicant(s)

MAARANEN ET AL.

Examiner

RIP A. LEE

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 1, 4, 8, 10-13, 15, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS-100)
Paper No(s)/Mail Date 09-23-2005

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claim 1 is objected to because of the following informalities: It is not entirely clear what is meant by the term "homocyclopentadienyl." Appropriate correction is required.

3. Claim 1 is objected to because of the following informalities: It is not clear to which non-cyclopentadienyl ring moiety the phrase refers. Appropriate correction is required.

4. Claim 4 is objected to because of the following informalities: Please rewrite the claim. Appropriate correction is required.

5. Claim 8 is objected to because of the following informalities: Please replace "claim" with "any one of claims." Appropriate correction is required.

6. Claim 10 is objected to because of the following informalities: Please replace "claims" with "claim." Appropriate correction is required.

7. Claim 10 is objected to because of the following informalities: Please rewrite the claim so that the structure does not interrupt the text. Appropriate correction is required.

8. Claim 11 is objected to because of the following informalities: The process, rather than the slurry phase, is carried out in the reactor. Please rephrase the claim accordingly. Appropriate correction is required.

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9. Claims 12 and 13 are objected to because of the following informalities: There is no antecedent basis for the term "slurry phase polymerization." Please rephrase the claim appropriately. Appropriate corrections are required.

10. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Since claim 15 recites the same elements of claim 13, claim 15 would appear to fail to limit further the subject matter of claim 13.

11. Claim 22 is objected to because of the following informalities: Since the claim is drawn to a metallocene, *i.e.*, singular, there is no need for the recitation, "and mixtures thereof." Appropriate correction is required.

12. Claim 23 is objected to because of the following informalities: In line 1, replace "olefin" with "polyolefin." Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 1-19 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1 and 23 are drawn to metallocenes in which Cpⁿ is an optionally substituted and/or optionally fused heterocyclopentadienyl ligand. The examiner has turned to the specification for guidance. While the disclosure sufficiently teaches metallocenes containing (homo [*sic*]) cyclopentadienyl

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ligands, and one of ordinary skill in the art would reasonably extract the information and conclude that the specification is adequately enabling with respect to metallocenes containing fused, carbocyclic ligands, *i.e.*, indenyl, tetrahydroindenyl, benzoindenyl, and fluorenyl, the disclosure is lacking in teaching or working example of metallocenes containing heterocyclopentadienyl ligands, let alone substituted and/or fused variants thereof. In light of these considerations, it is deemed that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Dependent claims 2-19 are subsumed under the rejection.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 1-19 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 23 are drawn to metallocenes in which Cp" is an optionally substituted and/or optionally fused heterocyclopentadienyl ligand. The examiner has turned to the specification for guidance. The disclosure is lacking in teaching or working example of metallocenes containing heterocyclopentadienyl ligands, let alone substituted and/or fused variants thereof. Therefore, it is not clear what structural feature is being claimed by the term "heterocyclopentadienyl ligand." In light of these facts, it is concluded that the claims fail to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Dependent claims 2-19 are subsumed under the rejection.

17. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There are eight structural isomers of *bis*(dimethylindenyl)Hf dibenzyl, and it is not clear which isomer is being claimed.

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Claim Rejections - 35 USC § 102

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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21. Claims 1, 3-5, 8, 9, 18, 19 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Turner *et al.* (U.S. 5,767,208).

Turner *et al.* discloses an olefin polymerization process in the presence of catalysts containing a bridged hafnocene compound (col. 4, lines 1-12; claim 5) and aluminoxane co-catalyst (col. 8, lines 41-61). The compound $\text{Me}_2\text{Si}(\text{C}_5\text{Me}_4)(\text{Cp})\text{Hf}(\text{CH}_2\text{Ph})_2$ is exemplary (col. 4, line 9, claim 5). In one embodiment of the invention, use of inert support allows for carrying out slurry polymerization such that polyolefin product with higher molecular weight and higher level of comonomer incorporation is obtained (col. 9, lines 44-50). Examples show that inventive catalysts are useful for preparation of ethylene homopolymer and ethylene-hexene copolymer. Claim 23, drawn to a (poly)olefin, is presented in product-by-process format. It is well settled that where product by process claims are rejected over a prior art product that appears to be the same, the burden is shifted to the Applicant to establish an unobviousness difference, even if the production processes are different. Furthermore, the patentability of a product claim rests on the product formed, not on the method by which it was produced. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

22. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Skar *et al.* (WO 00/40620).

Skar *et al.* discloses a series of transition metal complexes for use as a component in an olefin polymerization catalyst. Compounds are represented by the formula $(\text{Cp}-\text{R}^1)(\text{Cp}-\text{R}^2)\text{Hf}(\text{X}_1)(\text{X}_2)$, where R^1 and R^2 , same or different, are linear or branched C_1 - C_{10} hydrocarbyl group and X^1 and X^2 are halogen, methyl, or benzyl (col. 7, lines 5-15). The inventors disclose the compound $(n\text{-BuCp})_2\text{HfCl}_2$, and it follows that the compound $(n\text{-BuCp})_2\text{HfBz}_2$, where Bz is benzyl, is a veritable embodiment within the scope of the inventive metallocenes. The catalyst is comprised of the contact product of metallocene, aluminoxane, and an inert carrier (col. 7, lines 40-50). The polymerization process involves a multi-stage operation in which olefin is polymerized in the first stage in a loop reactor and in a second stage in a gas phase reactor; more than one gas phase operations, carried out in sequence is contemplated. See discussion in

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columns 8-10 and claims 1-3, 10, and 11. Production split between components is 30:70 to 70:30 (col. 10, lines 10-13). Prepolymerization is disclosed in col. 8, line 12. Claim 23, drawn to a (poly)olefin, is presented in product-by-process format. It is well settled that where product by process claims are rejected over a prior art product that appears to be the same, the burden is shifted to the Applicant to establish an unobviousness difference, even if the production processes are different. Furthermore, the patentability of a product claim rests on the product formed, not on the method by which it was produced. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/
Primary Examiner, Art Unit 1796

March 6, 2008